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ABSTRACT

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This invention pertains to a siloxane resin composition comprising $R^1\text{SiO}_{3/2}$ siloxane units, $R^2\text{SiO}_{3/2}$ siloxane units and $(R^3\text{O})_b\text{SiO}_{(4-b)/2}$ siloxane units wherein R^1 is an alkyl group having 1 to 5 carbons, hydrogen, or mixtures thereof; R^2 is a monovalent organic group having 6 to 30 carbons; R^3 is a branched alkyl group having 3 to 30 carbons, b is from 1 to 3; and the siloxane resin contains from 2.5 to 85 mole percent $R^1\text{SiO}_{3/2}$ units, 2.5 to 50 mole percent $R^2\text{SiO}_{3/2}$ units and 5 to 95 mole percent $(R^3\text{O})_b\text{SiO}_{(4-b)/2}$ units. The siloxane resin is useful to make insoluble porous resin and insoluble porous coatings. Heating a substrate coated with the siloxane resin at a sufficient temperature effects removal of the R^2 and $R^3\text{O}$ groups to form an insoluble insoluble porous coating having a porosity of 1 to 60 volume percent and a dielectric constant in the range of 1.5 to 3.0.